

AMENDMENTS TO THE SPECIFICATION

Please insert the following heading on page 1, between lines 2 and 3 (*i.e.*, before numbered line 1):

BACKGROUND

Please replace the paragraph on page 2, lines 6-16 with the following:

One prior art solution to this problem has been provided in United States Patent No. 5,941,674 issued to Briehl, entitled “Interchangeable Electronic Carrier Tape Feeder Adaptable to Various Surface Mount Assembly Machines”. This solution provides an apparatus for feeding a carrier tape with successive sprocket holes and indexed pockets for carrying small components, and used in conjunction with various pick and place assembly machines for surface-mounting of the small components onto a printed circuit board or other assembly substrate. Briehl teaches an interchangeable electronic feeder adaptable to various surface mount assembly machines with a set of height support adapters. However, Briehl fails to address the ~~existing~~ plethora of existing feeder mechanisms in inventory ~~by providing and instead provides~~ yet another feeder mechanism, which further complicates the issue as opposed to utilizing existing feeders.

Please insert the following heading on page 2, between lines 20-21 (*i.e.*, between numbered lines 20 and 23):

SUMMARY

Please replace the paragraphs on page 2, line 25 (*i.e.*, numbered line 27) – page 3, line 2 with the following:

[0008] ~~More~~ More specifically, the present invention provides an interfacing device that integrates ~~feeders~~ feeder mechanisms and surface mount machines of differing manufacture. This interfacing device includes a carriage to which a feeder plate mechanism is mounted. The carriage provides external feeder connectors from the surface mount machine to the feeder plate mechanism. Feeder mechanisms, received by the feeder plate mechanism, have internal feeder connectors, which connect from the feeder plate mechanism to the feeder mechanisms themselves. Thus, the feeder plate mechanism can adapt the external feeder connectors on a particular surface mount machine of one manufacturer to the internal feeder connectors of the feeder mechanisms of another manufacturer.

Please replace the paragraph on page 4, lines 8-19 with the following:

Yet another embodiment of the present invention incorporates many of these features. Such an interfacing device includes a carriage to which a feeder plate mechanism is mounted, wherein the carriage provides external feeder connectors from the surface mount machine to the feeder plate mechanism, wherein these external feeder connectors include both pneumatic and electrical connections. A number of feeder mechanisms are received by the feeder plate mechanism ~~wherein mechanism, wherein~~ internal feeder connectors couple the feeder plate mechanism and feeder mechanisms pneumatically and electrically. Thus, the feeder plate mechanism serves to adapt the external feeder connectors from the surface mount machine to internal feeder connectors of a different type. Mechanical stops and positioning pins secure the feeder mechanisms and feeder plate mechanism to the surface mount machine/carriage assembly. A means for selecting a type of feeder mechanism is located within the interface device or the surface mount machine.

Please replace the paragraphs on page 5, lines 8 – 14 (*i.e.*, numbered lines 8 – 16) with the following:

~~Further novel features and other objects of the present invention will become apparent from the following detailed description, discussion and the appended claims, taken in conjunction with the drawings. It is to be understood that both the foregoing general description and the following detailed description are exemplary and explanatory only, and are not restrictive of the invention as claimed.~~

BRIEF DESCRIPTION OF THE DRAWINGS

~~For a more complete understanding of the present invention and the advantages thereof, reference is now made to the following description taken in conjunction with the accompanying drawings in which like reference numerals indicate like features and wherein: These and other features, aspects, and advantages of the present invention will become apparent from the following description, appended claims, and the accompanying exemplary embodiments shown in the drawings, which are briefly described below.~~

Please insert the following heading on page 5, between lines 28 and 29 (*i.e.*, numbered lines 30 and 33):

DETAILED DESCRIPTION

Please replace the paragraphs starting on page 6, line 21 – page 7, line 4 with the following:

The ~~FES cart~~ FES carts provided by the present invention facilitate fast changeovers from one surface mount machine to another surface mount machine by switching a complete feeder plate with a number of feeder mechanisms. Feeder plates, mounted on the carts, allow offline feeder setup, thus reducing or preventing tool downtime. These FES carts are easily moved from a setup area to a surface mount machine and back. The option is available for FES carts to interface with the front right, front left, rear right or rear left of a standard surface mount machine.

Figure 1 provides a perspective view of a FES cart of the present invention. FES cart 10 includes feeder plate 12 which contain a number of feeder mechanisms. Although this embodiment may utilize tape feeder mechanisms, the present invention may be applied equally to tape, bulk, tube or other such feeder mechanisms as are known to those skilled in the art. As shown in Figure 2, feeder plate 12 may contain up-to-~~20~~ to twenty 8mm tape feeders, which are labeled “21” through “40”. Tape dump box 14 collects tape waste (not shown) from the ~~feeders (not shown)~~ feeders. Height adjustment bolts 16 on frame 18 allow the height of the feeder plate to be adjusted in order to seamlessly integrate with the surface mount machine (not shown). Frame 18 may be easily moved and rolled into and out of position with casters 20. Casters 20 may have brakes to prevent movement while holding FES cart 10 firmly in place next to a surface mount tool. Handles 22 and casters 20 allow for easy positioning of FES cart 10.

Please replace the paragraph starting on page 8, line 32 – page 9, line 12 with the following:

Figure 7 provides a perspective view of another embodiment of an FES cart, as provided by the present invention. FES cart 60 holds or contains a plurality of feeder mechanisms 62. A rear pin lock plate feeder base assembly 64 holds feeder mechanisms 62 in place relative to the FES cart 60 at the rear. Assembly 64 is clearly shown in Figure 8. Positioning or dowel pins 66 hold feeder mechanisms 62 in place relative to FES cart 60. To hold the feeder mechanisms in place relative to the forward of the cart, a front shield feeder lock 68 is provided. Left and right side plates 70 further ~~defines~~ define the space with which the FES cart may receive feeder mechanisms 62. An L-shaped dowel holder, or front feeder lock 72 further helps secure feeder mechanisms 62 and additionally may contain taps or pins operable to receive dowels or holes from the feeder mechanisms, as illustrated by caps 74 within the L-shaped brackets 76 shown in Figure 9. The front shield assembly shown in Figure 7 allows tape from the reels of the feeder mechanisms to be directed to a waste bin located at the bottom of the feeder cart. This eliminates the need for cutter assemblies often used with feeder mechanisms that have an inherent danger associated with the feeder mechanism.